

Missouri Assessment Program Spring 2003

Science

Released Items

Grade 10



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2

Each of the three main particles that make up a neutral atom has mass and either a positive (+), negative (−), or neutral (0) charge.

List the three main particles found in a neutral atom.

1. _____
2. _____
3. _____

Show the charge on each of these three particles by writing a symbol (+, −, or 0) to the right of its name.

Circle the name of the particle that has the least mass.

Go On ►

- 6** Formerly, doctors were limited to using X-rays to study the insides of patients. Recently, doctors have been able to obtain images of the insides of patients using Magnetic Resonance Imaging (MRI).

Describe one advantage of using Magnetic Resonance Imaging for examining patients compared to using X-rays.

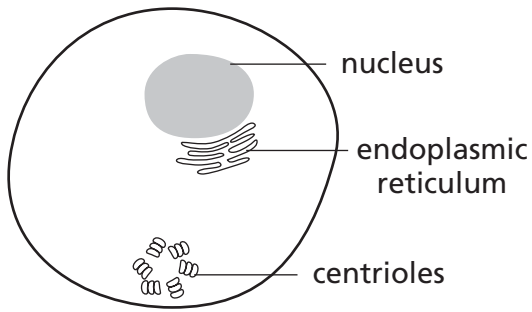
Go On ►

15 Jupiter is the largest planet in our solar system.

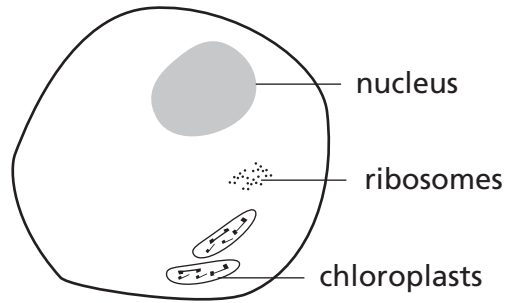
Explain why Jupiter might have become a star if it had had more mass and had been larger when it was first formed.

DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑ DO NOT WRITE HERE ↑

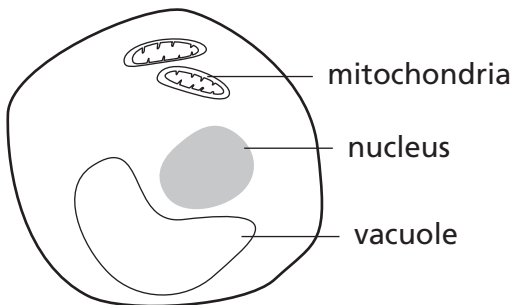
30 Circle the diagram that depicts a cell capable of making sugar.



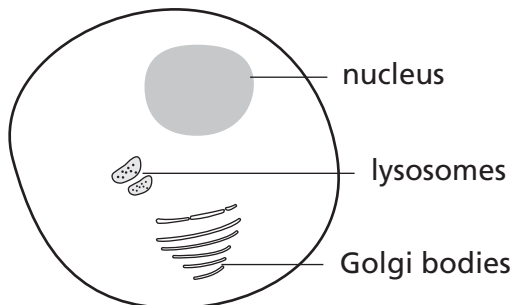
Cell A



Cell B



Cell C



Cell D

Explain your answer.

Go On ►

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Released Items Scoring Guide

Grade 10

Session:	1
Item:	2
Page:	3
Standard:	III.A.4 (Std 1)
Goals:	1.10

Key Elements:

electron, proton, neutron (in any order)

– with electron, + with proton, 0 with neutron

Electron is circled.

Score Points:

3 points three key elements

2 points two key elements

1 point one key element

0 points other

Session:	1
Item:	6
Page:	5
Standard:	II.A.2 (Std 8)
Goals:	3.8

Key Elements:

any one of the following:

- X-rays may cause cancer; MRIs do not.
 - X-ray (film) is black and white; MRI (images) may be in color.
 - MRIs show soft-tissue organs more clearly than X-rays.
 - MRIs can be reprocessed to show 3-D images.
-

Score Points:

1 point one key element
0 points other

Session:	1
Item:	15
Page:	10
Standard:	V.A.2 (Std 6)
Goals:	1.10

Key Elements:

any one of the following:

- Jupiter is mostly made of hydrogen and helium gases; gravitational forces acting on larger mass with such a composition might have caused nuclear fusion to occur.
 - A larger mass and size could have provided sufficient gravity to start fusion, similar to how a star might be born.
 - any answer where the student notes the need for a sufficient mass or the need for hydrogen to produce nuclear fusion
-

Score Points:

1 point one key element
0 points other

Session:	3
Item:	30
Page:	13
Standard:	VII.A.2 (Std 3)
Goals:	1.10

Key Elements:

cell B

AND

either one of the following:

- contains chloroplasts where sugar is formed
 - contains chloroplasts that perform photosynthesis
-

Score Points:

1 point one key element
0 points other